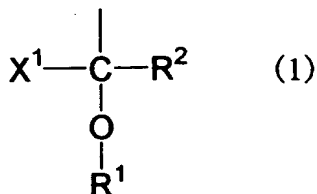


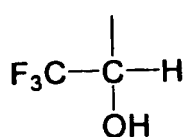
WHAT IS CLAIMED IS:

1. A radiation-sensitive resin composition comprising (A) an acid-labile group-containing resin having a structure represented by the following formula (1) and (B) a photoacid generator:

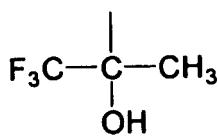


wherein R<sup>1</sup> represents a hydrogen atom, a monovalent acid-labile group, an alkyl group having 1-6 carbon atoms which does not have an acid-labile group, or an alkylcarbonyl group having 2-7 carbon atoms which does not have an acid-labile group, X<sup>1</sup> represents a linear or branched fluorinated alkyl group having 1-4 carbon atoms, and R<sup>2</sup> represents a hydrogen atom, a linear or branched alkyl group having 1-10 carbon atoms, or a linear or branched fluorinated alkyl group having 1-10 carbon atoms.

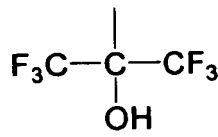
2. The radiation-sensitive resin composition according to claim 1, wherein the structure represented by the formula (1) is at least one structure selected from the group consisting of the following formulas (1-1) to (1-12),



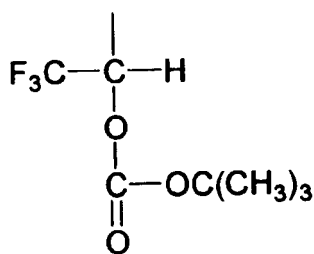
(1-1)



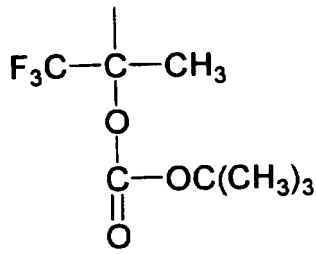
(1-2)



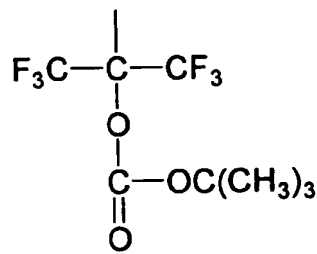
(1-3)



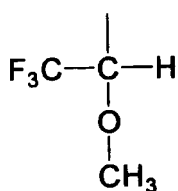
(1-4)



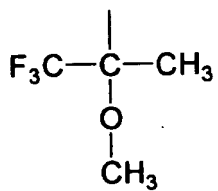
(1-5)



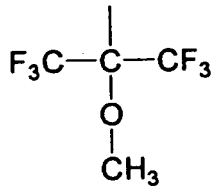
(1-6)



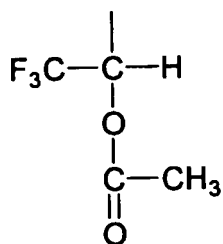
(1-7)



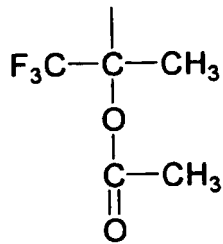
(1-8)



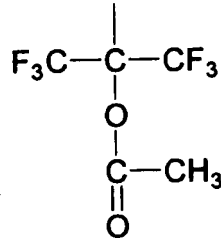
(1-9)



(1-10)



(1-11)



(1-12)

3. The radiation-sensitive resin composition according to claim 1, wherein the structure represented by the formula

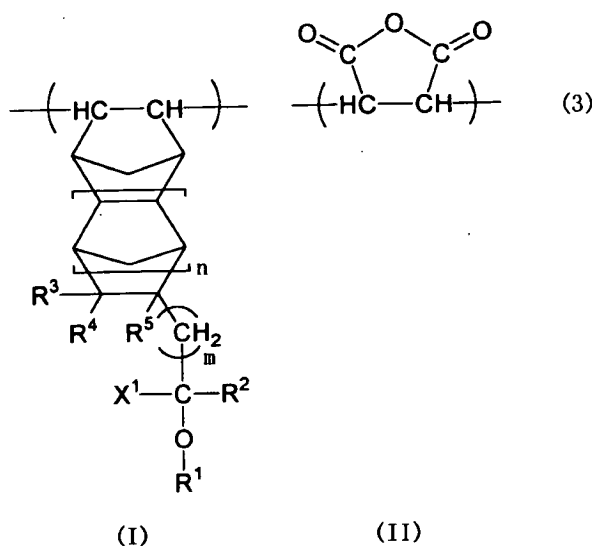
[illegible]

*Phragmites* *communis* L., *Spartina patens* (Muhl.) B.S.P., *Cyperus tenuiflorus* (L.) Rostk Schmidt, *Juncus roemerianus* (L.) Solms, *Scirpus americanus* (L.) P.B.

[illegible]

carbon atoms which does not have an acid-labile group,  $X^1$  represents a linear or branched fluorinated alkyl group having 1-4 carbon atoms,  $R^2$  represents a hydrogen atom, a linear or branched alkyl group having 1-10 carbon atoms, or a linear or branched fluorinated alkyl group having 1-10 carbon atoms,  $R^3$ ,  $R^4$ , and  $R^5$  individually represents a hydrogen atom or a linear or branched alkyl group having 1-4 carbon atoms, a monovalent oxygen-containing polar group, or a monovalent nitrogen-containing polar group,  $n$  is an integer of 0-2, and  $m$  is an integer of 0-3.

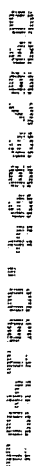
5. The radiation-sensitive resin composition according to claim 1, comprising (A) an alkali insoluble or scarcely soluble acid-labile group-containing resin having a recurring unit (I) and a recurring unit (II) shown by the following formula (3) and (B) a photoacid generator:



wherein  $R^1$  represents a hydrogen atom, a monovalent acid-labile group, an alkyl group having 1-6 carbon atoms which does not have an acid-labile group, or an alkylcarbonyl group having 2-7 carbon atoms which does not have an acid-labile group,  $X^1$  represents a linear or branched fluorinated alkyl group having 1-4 carbon atoms,  $R^2$  represents a hydrogen atom, a linear or branched alkyl group having 1-10 carbon atoms, or a linear or branched fluorinated alkyl group having 1-10 carbon atoms,  $R^3$ ,  $R^4$ , and  $R^5$  individually represents a hydrogen atom or a linear or branched alkyl group having 1-4 carbon atoms, a monovalent oxygen-containing polar group, or a monovalent nitrogen-containing polar group,  $n$  is an integer of 0-2, and  $m$  is an integer of 0-3.

6. The radiation-sensitive resin composition according to claim 5, wherein the content of the recurring unit (I) in the resin component (A) is 1-50 mol% of the total amount of recurring units.

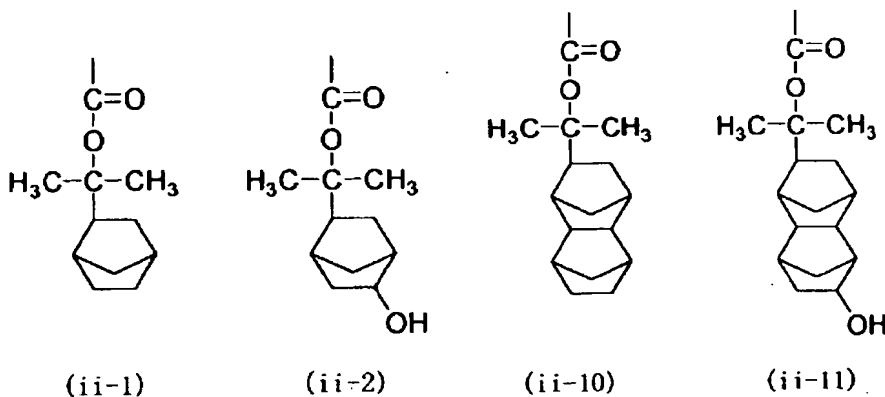
7. The radiation-sensitive resin composition according to claim 1, wherein the alkali insoluble or scarcely soluble acid-labile group-containing resin (A) has a recurring unit (I), recurring unit (II), and recurring unit (III) shown by the following formula (4):

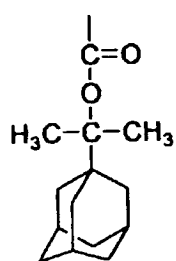


138

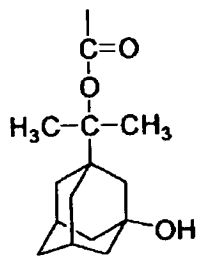
thereof, with the remaining  $R^7$  being a linear or branched alkyl group having 1-4 carbon atoms or a monovalent alicyclic hydrocarbon group having 4-20 carbon atoms or a derivative thereof.

8. The radiation-sensitive resin composition according to claim 7, wherein the group  $-\text{COO}-\text{C}(\text{R}^7)_3$  in the recurring unit (III) of the formula (4) is at least one group selected from the group consisting of t-butoxycarbonyl group, 1-methylcyclopentyloxycarbonyl group, 1-methylcyclohexyloxycarbonyl group, and the groups represented by the following formulas (ii-1), (ii-2), (ii-10), (ii-11), (ii-13), (ii-14), (ii-16), (ii-17), (ii-22), (ii-23), (ii-34), (ii-35), (ii-40), (ii-41), (ii-52), or (ii-53).

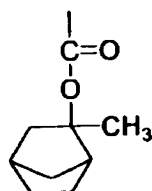




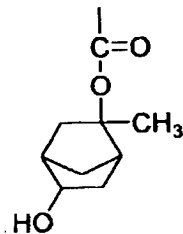
(ii-13)



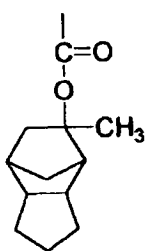
(ii-14)



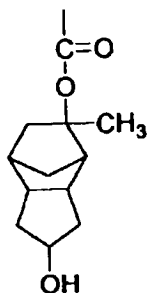
(ii-16)



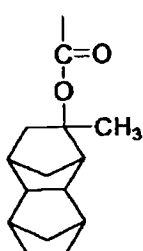
(ii-17)



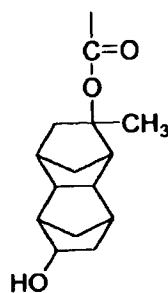
(ii-22)



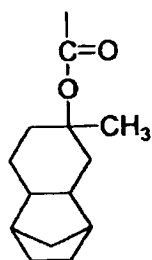
(ii-23)



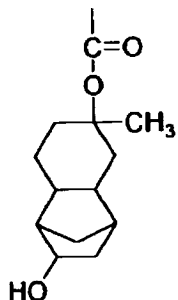
(ii-34)



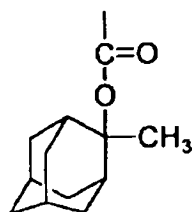
(ii-35)



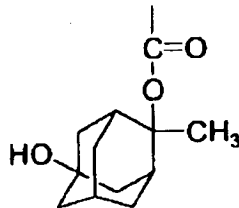
(ii-40)



(ii-41)



(ii-52)



(ii-53)

9. The radiation-sensitive resin composition according to claim 5, wherein the alkali insoluble or scarcely soluble acid-labile group-containing resin (A) further comprises an acid-labile group-containing recurring unit shown with the following formula (7):

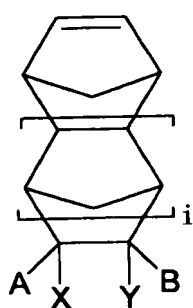


$$\begin{array}{c} \text{---(HC---CH)---} \\ | \\ \text{[Cyclohexane ring]} \\ | \\ \text{[Cyclohexane ring]} \\ | \\ \text{[Cyclohexane ring]} \\ | \\ \text{A X Y B} \end{array} \quad (7)$$

wherein A and B individually represent a hydrogen atom or an acid-labile group having 20 or less carbon atoms which dissociates and produces an acidic functional group in the presence of an acid, at least one of A and B being the acid-labile group, X and Y individually represent a hydrogen atom or a linear or branched monovalent alkyl group having 1-4 carbon atoms, and i is an integer of 0 to 2.

10. The radiation-sensitive resin composition according to claim 9, wherein the recurring unit represented by the formula (7) in the component (A) is a recurring unit originating from at least one compound selected from the group consisting of:

a compound of the following formula (8),



(8)

wherein either one of A and B or both are a t-butoxycarbonyl group, 1-methylcyclopentyloxycarbonyl group,

1-methylcyclohexyloxycarbonyl group, or the group shown by the formulas (ii-1), (ii-2), (ii-10), (ii-11), (ii-13), (ii-14), (ii-16), (ii-17), (ii-22), (ii-23), (ii-34), (ii-35), (ii-40), (ii-41), (ii-52), and (ii-53), the remainder of the A and B, X, and Y are a hydrogen atom, and i is 0;

a compound of the formula (8) in which either one of A and B or both are a t-butoxycarbonyl group,

1-methylcyclopentyloxycarbonyl group,

1-methylcyclohexyloxycarbonyl group, or the group shown by the formulas (ii-1), (ii-2), (ii-10), (ii-11), (ii-13), (ii-14), (ii-16), (ii-17), (ii-22), (ii-23), (ii-34), (ii-35), (ii-40), (ii-41), (ii-52), and (ii-53), the remainder of the A and B, X, and Y are a hydrogen atom, and i is 1; and

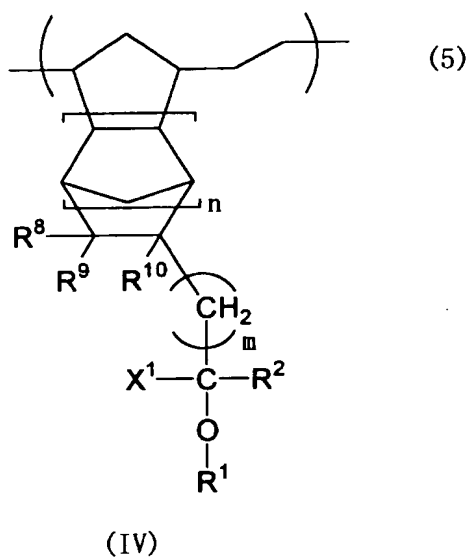
5,6-di(t-butoxycarbonylmethoxycarbonyl)bicyclo[2.2.1]hept-2-ene,

8-methyl-8-t-butoxycarbonyltetracyclo[4.4.0.1<sup>2,5</sup>.1<sup>7,10</sup>]dodec-3-ene, and

8-methyl-8-t-butoxycarbonylmethoxycarbonyltetracyclo[4.4.0.

1<sup>2,5</sup>.1<sup>7,10</sup>]dodec-3-ene.

11. The radiation-sensitive resin composition according to claim 1, comprising (A) an acid-labile group-containing resin having a recurring unit (IV) represented by the following formula (5) and (B) a photoacid generator:



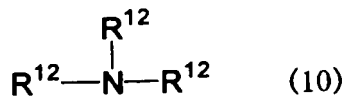
wherein R<sup>1</sup> represents a hydrogen atom, a monovalent acid-labile group, an alkyl group having 1-6 carbon atoms which does not have an acid-labile group, or an alkylcarbonyl group having 2-7 carbon atoms which does not have an acid-labile group, X<sup>1</sup> represents a linear or branched fluorinated alkyl group having 1-4 carbon atoms, R<sup>2</sup> represents a hydrogen atom, a linear or branched alkyl group having 1-10 carbon atoms, or a linear or branched fluorinated alkyl group having 1-10 carbon atoms, R<sup>8</sup>, R<sup>9</sup>, and R<sup>10</sup> individually represents a hydrogen atom or a linear

or branched alkyl group having 1-4 carbon atoms, a monovalent oxygen-containing polar group, or a monovalent nitrogen-containing polar group, n is an integer of 0-2, and m is an integer of 0-3.

12. The radiation-sensitive resin composition according to claim 1, wherein the photoacid generator of component (B) is at least one compound selected from the group consisting of an onium salt compound, halogen-containing compound, diazoketone compound, sulfone compound, and sulfonic acid compound.

13. The radiation-sensitive resin composition according to claim 1, further comprising a nitrogen-containing organic compound as an acid diffusion controller.

14. The radiation-sensitive resin composition according to claim 13, wherein the nitrogen-containing organic compound selected from the group consisting of a compound shown by the following formula (10), compound having two nitrogen atoms in the molecule, polyamino compound or polymer having three or more nitrogen atoms, quaternary ammonium hydroxide compound, amide group-containing compound, urea compound, and nitrogen-containing heterocyclic compound.



wherein R<sup>12</sup> individually represents a hydrogen atom, a substituted or unsubstituted, linear, branched, or cyclic alkyl group, substituted or unsubstituted aryl group, or substituted or unsubstituted aralkyl group.

15. The radiation-sensitive resin composition according to claim 1, further comprising an alicyclic additive having an acid-labile organic group.

16. The radiation-sensitive resin composition according to claim 15, wherein the alicyclic additive is at least one compound selected from the group consisting of an adamantane derivative, a deoxycholate, a lithocholate, and 2,5-dimethyl-2,5-di(adamantylcarbonyloxy)hexane.

Add A'